Trip Report: Summary of Selected Subcommittee and Task Group Meetings NFRC Meeting, Des Plaines, IL July 11—12, 2002

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The author attended three Task Group (TG) and four Subcommittee (SC) meetings of the NFRC held at Des Plaines, IL on July 11 and July 12, 2002 as summarized below. The attachments are available from the SC or TG chairmen. Their addresses and contact information are available from NFRC (301) 589-1776 (temporary until they settle at their new location) or on the website www.nfrc.org. At each meeting, the attendees were informed about the NFRC anti-trust reminders, voting requirements, the importance of signing the attendance sheet, and who the Chair had appointed to serve as the recording secretary. The minutes of the prior meeting of each particular SC or TG were also approved as distributed, as posted on the website, or after making minor corrections.

Thermo-physical Properties of Materials (TPM TG). The Chair, D. Curcija, (MIE Dept.; CEERE, University of Massachusetts, 106 Governors Drive, Amherst, MA 01003-9265 (curcija@ecs.umass.edu) called the TPM TG to order at 1010 h on July 11. The Chair distributed minutes of a conference call that was made to resolve issues about the balloted NFRC 101 document. A copy of these minutes is available from the Chair. Issues were raised about the Preface, Scope, Terminology, Section 4.1 on Generic Properties including a statistical reference for the test samples, Section 4.2 on Manufacturer Specific Properties (including peer review, quality control, re-certification, and sample storage), the Test procedure including the mean temperature of thermal conductivity testing and solar absorptivity, and Appendix A—a list of generic materials. Six new terms need to be defined and added to the Terminology Section. Using 5% as a statistical reference was discussed and it was agreed to use a re-evaluation cycle of four years for quality control involving a minimum of three samples. Sample storage for five years was chosen. It was agreed that statistical sensitivity calculations of 5%, 10%, and 20% need to be made prior to the next ballot for establishing the percentage for a statistical reference. For Appendix A, the most common materials will be listed and a computer program will be developed to simplify accessing data about a particular material from the data bank. The meeting then degenerated into lengthy discussions about the location of information in the document and format as well as what NOT to include. The revised document will be submitted for an NFRC ballot so the results will be available for discussion at the Annual Fall meeting in Girdwood, AK on October 1, 2, or 3. The meeting was adjourned at 1205 h.

Research (R) SC. The Chair, Joe Hayden (Pella Corp., 102 Main St., Pella, IA, 50219, JAHayden@pella.com) called the R SC meeting to order at 1305 h. The Chair deferred approval of the minutes from the previous meeting to the meeting in Girdwood, AK. He reaffirmed that the BOD has not provided a budget for the R SC, but will act on each recommendation for funding on a case-by-case basis. The rest of the meeting was devoted to receiving reports about present and future projects under old business. These are summarized in Appendix 1. The Chair appointed a task group for long range planning for the research needs of NFRC. The mission statement of the task group is also listed in Appendix 1. The meeting was adjourned at 1453 h.

Condensation Resistance (CR) SC. The CR SC meeting was cancelled just prior to the meeting by the Chair, Jeff Baker, WESTLab (jeff@westlab.net).

U-factor (UF) SC. The UF SC was called to order at 1500 h by the Chair, M. Falke, Keystone Certification, Inc., (mfalke@earthlink.net). The SC received status reports from the Fenestration Glossary and Terminology task group. The update by the Thermo-physical Properties Task Group is summarized above. No reports were made by the Doors, Skylights, and Testing Laboratories task groups. The remainder of the meeting was devoted to revising the NFRC 100 Combined document. The SC approved revising three drawings in the document. The SC adopted a long series of editorial revisions by consensus. A motion to remove all references to revolving doors from the document was adopted (16-1-2). Negative comments about site built glazed wall systems in Table 1, Footnote 11 were found persuasive (14-1-3). The language is the document will be changed as requested (14-0-4). The SC unanimously approved forwarding the revised document, which now has substantive changes, for concurrent balloting by the U-factor SC and the Technical Committee. The Chair appointed several members of the SC to a simulator task group. The new TG will address issues such as blinds, generic dividers, door scars both inside and outside, triple point locks, nominal glass thicknesses for modeling in wall jams, defaults for caming and patterns, default factors for frames, revolving doors, default factors for door frames, and a condensation resistance rating. The meeting was adjourned at 1705 h.

Long-term Energy Performance (LTEP) SC. The Chair, Jack Cole (Caradco, 201 Evans Road, Rantoul, IL, 61866, jackc@jeld-wen.com) called the LTEP SC meeting to order at 1100 h on July 12. The Chair stated that the test protocol, which is being used in the research project, is now posted on the NFRC website. Sam Yuan of the Environmental Testing Corp. (ETC) provided a verbal update of the status of testing of 18 of the 24 windows and doors. The testing of 14 of these has been completed and testing the four remaining units will be completed by September 2. Six specimens are still needed for completing the test matrix of 24 windows and doors. These have been promised for delivery but have not yet been received. The six specimens not yet received conveniently fall in two columns of high-end aluminum products (sliding seal door, sliding seal window, and compression seal door) and low-end wood products (sliding seal door, compression seal window, and compression seal door). By Sept. 2, testing of low-end aluminum and vinyl products and high-end wood and vinyl product will be completed for the four categories of sliding seal door, sliding seal window, compression seal door, and compression seal window.

The Chair then summarized the background and purpose of the research project, progress made to date, and the need to consider in-depth the partial results for at least 16 of the specimens at the meeting in Girdwood, AK. In the past, ETC has provided partial results but the prior Chair decided to hold further results until testing of all 24 specimens was completed. For the next meeting, ETC was asked to complete the testing on the four specimens that are partially tested, and to report the results for the 18 specimens. The SC was asked if it is willing (1) to evaluate the data for the 18 units for trends by class (high end or low end) and material (aluminum, vinyl, or wood), (2) to review the test protocol, and (3) to decide on the need to complete testing the remaining six units beginning in the middle of October. A motion to address issues (1), (2), and (3) at the next meeting was adopted (9-0-0). The Chair restated the SC goal of identifying

modifiers for the annual energy performance of products, and that these should be simple, if at all possible. The meeting was adjourned at 1140 h.

Optical Properties Verification (OPV) TG. The Chair, Valerie Block (PGMC, P. O. Box 947, Narberth, PA 19072, valpgmc@home.com) called the meeting to order at 1100 h on July 12. The author joined the meeting at 1140 h. Prior to my arrival the TG resolved under Old Business several issues about the recently balloted NFRC 300. For New Business, the Chair distributed a four-page document entitled "Proficiency Testing by Interlaboratory Comparison of Glazing Optical Properties" (a copy is available from the Chair). This plan was developed in accordance with ASTM E 1301-95, which was also distributed by the Chair. Sections 6.1.2.1—13 of the ASTM standard are addressed in the four-page document. In Section 6.1.2.1, LBNL is identified as the organization conducting the proficiency program and in Section 6.1.2.2, Mike Rubin is designated as the coordinator for the program along with J. Benney, V. Block, B. Crookes, R. Curtin, H. Dieterich, D. Duly, T. Kopec, J. Schimmelpenning, and J. Theios as participants. The purpose of the program is to determine the qualifications of glazing manufacturers and some private test labs to submit optical data on glazing products to the International Glazing Database. The remainder of the document provides information about procedures, participating labs, the nature of test items and tests, handling of test items, information supplied to participants, duration of the program, detailed test procedures, basis for statistical models, techniques for evaluating laboratory performance, and extent to which the results are made public.

The Chair announced plans for a panel discussion about fading and parameters that provide fading resistance. The purpose of the discussion, which will be open to all in the NFRC, will be to identify new issues in addition to those presently known. The emphasis will be on the practical aspects of fading. A discussion about using ASTM E 1794 is needed. J. Benney raised a concern about the reliance in NFRC 300 on ASTM E 903, which will be reballoted this fall. Thus, removing the content from NFRC 300 that will be covered in the new E 903 could leave the NFRC without an experimental framework. It was agreed by consensus of the TG that the sections that were removed from the NFRC 300 document should be reinstated until the new E 903 is available. In addition, the damage-weighted "Krochmann" transmission function needs to be replaced in NFRC 300. The meeting was adjourned at 1210 h.

Solar Heat Gain (SHG) SC. The Chair, Valerie Block (PGMC, P. O. Box 947,Narberth, PA 19072, valpgmc@home.com) called the SC meeting to order at 1245 h. For resolution of the ballot on NFRC 300, S. Reilly highlighted all the recommended editorial changes. Additions were made for products not covered and definitions to terminology. The SC approved all editorial changes by consensus. I left this meeting at 1300 h to attend the AEP TG meeting.

Annual Energy Performance (AEP) TG. The Chair, J. Carmody (U. Minnesota, 1425 University Avenue, S.E., Ste. 225, Minneapolis, MN 55455, carmo001@maroon.tc.unm.edu) called the meeting to order at 1300 h. The TG was formed in April 2002 at the meeting in Snowbird, Utah. The purpose of the task group is to find a way to recapture the goal of the AEP, and not to discuss anything about ratifying NFRC 900. For the scope, the Chair identified four categories, i.e., to (1) provide a fair simple way for consumers to determine energy performance (savings in both energy and cost), (2) give consumers meaningful information about window performance, (3) transform sales in the market to more energy efficient products, and (4) adapt

an energy star-type rating that is user friendly because U-factor and SHGC information is not user friendly. For recapturing the goal and shared vision for the AEP, the NFRC should be able to tell the consumers what they need for energy efficiency, e.g., with an energy star method that is clearly related to U-factor and SHGC without involving the consumer in detailed calculations. The Chair reviewed the work done about fenestration heating and cooling ratings (FHR and FCR) and how these ratings were obtained. Finally, a modified energy star rating program, which is similar to that used in Australia should be considered in which a label could include up to five stars for a heating rating and up to five stars for a cooling rating. For example, a product label on a window for Minneapolis could be FHR 4*/FCR 2*. Alternatively, the consumer could be given actual comparative performance information. In either case, the goal is to connect the consumer with products that are most suitable for their house. The Chair outlined two possible approaches for reaching the goal. The first is to use the traditional NFRC approach of agreeing on criteria and methods, labeling the windows, providing market information, and linking the consumer to products. The second is to provide the consumer with a decision making tool, which will require using a website or a calculation program. For this, the consumers define their situation with input such as location, orientation of their house, window areas facing north, east, west, and south, shading, etc. The calculations then show performance and cost for typical windows available on the marked. D. Curcija emphasized the NFRC needs AEP ratings, and that in Task 27 of the International Energy Agency (IEA), it has already been determined that an AEP rating is needed. Thus, the TG needs to proceed with establishing the framework for an NFRC AEP rating. When it became clear to me that the rest of the meeting would be devoted to rehashing information that has been more than adequately discussed for ten years, I left the meeting to return on an earlier flight.

Next Meeting. The next scheduled NFRC Meetings of Subcommittees, Task Groups, the Technical Committee and the Board of Directors will be at the Annual Fall Meeting from October 1—5, 2002 at Girdwood, AK.

Appendix I—Status of Research Committee Projects (April 24, 2002)

a. **Skylight Performance at Various Angles from the Vertical: Status of Peer Reviewed Papers from Two Projects**—No Report because W. duPont was not present.
b. **NFRC 201 Calibration and Comparison Testing RFPs**—No Report by W. duPont.
c. **Effect of Surface Heat Transfer Coefficients on U-Factors for Projecting and Highly Conductive Products**—D. Curcija indicated a revised procedure is being implemented. As a result, the timelines given for this project in April will be slipped so the final report will not be made until the 2003 Annual Spring Meeting.
d. **3D Heat Transfer Effects in Fenestration Projects**— D. Curcija (reporting for Jeff Baker) stated that the revised timelines are still valid for this project for which the final report will be given at the NFRC Annual Spring Meeting in 2003.
e. **Thermal Comfort Rating**—P. Lyon was not present but a Request for Proposal was sent via email. The RFP was unanimously approved by the R SC. A bid review task group was formed. The Chair will forward the RFP to the Technical Committee for approval and then the BOD for their approval and funding.
f. **U-factor Rating of Domed Skylights**—D. Curcija reported that no comments were received about the draft RFP presented in April. The RFP was unanimously approved by the R SC. A bid review task group was formed. The Chair will forward the RFP to the Technical Committee for approval and then the BOD for their approval and funding.
g. **Investigation of Heat Transfer Effects of Sloped and Ventilated Internal Cavities of Framing Systems**—D. Curcija reported that no comments were received about the draft RFP presented in April. The RFP was unanimously approved by the R SC. A bid review task group was formed. The Chair will forward the RFP to the Technical Committee for approval and then the BOD for their approval and funding
h. **Publication of Two Papers in ASHRAE**—the final drafts of two papers, which have been received by B. Crooks, have been reviewed informally and M. Collins of ASHRAE stated the papers need to be improved before being submitted to them for formal review. The papers treat methods for obtaining the SHGC of (i) glass blocks and (ii) window attachments.
i. **U-factor Rating of Tubular Daylighting Devices (TDD)**—Sam Yuan submitted a draft RFP Summary Page. The R SC moved to request that a complete RFP be prepared.
j. **Solar Heat Gain/Visual Transmittance Rating of Tubular Daylighting Devices.** The NFRC BOD approved the $40 k of funding for this project. A project monitoring task group was formed.
k. **Other Old Business. None**

New Business. The mission of the Long-range Planning Task Group (LRPTG) was distributed. It is to develop a five-year plan for NFRC's research needs for review by the R SC, the Technical Committee, and the BOD. The following factors will be considered for this research plan: (1) improving the accuracy of existing procedures where needed, (2) assuring that all fenestration products can be addressed by NFRC procedures, and (3) developing procedures for new indices, e.g., fading, AEP, and comfort. The LRPTG will suggest the scope and priorities of the NFRC-funded research, and develop a process for better incorporating research results into NFRC procedures. The LRPTG shall report to the R SC. The five-year plan needs to be approved by the BOD no later that November 2002.